

CLAIMS

1. A motor-driven injection molding machine characterized by comprising:

- (a) a member-to-be-driven;
- (b) a motor for operating the member-to-be-driven; and
- (c) a motion direction conversion portion disposed between the motor and the member-to-be-driven and adapted to convert to a linear motion a rotational motion of rotation generated by driving the motor, wherein
- (d) in the motor, a ratio of a stacking length of a magnet of a rotor to an inside diameter of a stator is 3 or more.

2. A motor-driven injection molding machine characterized by comprising:

- (a) a member-to-be-driven;
- (b) a motor for operating the member-to-be-driven; and
- (c) a motion direction conversion portion disposed between the motor and the member-to-be-driven and adapted to convert to a linear motion a rotational motion of rotation generated by driving the motor, wherein
- (d) in the motion direction conversion portion, a ratio of a length of a screw portion of a nut to a diameter of a screw shaft is 3 or more.

3. A motor-driven injection molding machine according to claim 1, wherein, in the motion direction conversion portion, a ratio of a length of a screw portion of a nut to a diameter of a screw shaft is 3 or more.

4. A motor-driven injection molding machine according to any one of claims 1 to 3, wherein:

(a) the motion direction conversion portion and the motor are disposed on the same axis;

(b) the motor comprises a hollow output shaft; and

(c) rotation of the motor is transmitted, within the output shaft, to a transmission shaft comprising the screw shaft of the motion direction conversion portion.

5. A motor-driven injection molding machine according to any one of claims 1 to 4, wherein:

(a) the motor is an injection motor; and

(b) the injection motor and a metering motor are disposed on the same axis.

6. A motor-driven injection molding machine according to any one of claims 1 to 5, wherein the motion direction conversion portion converts a rotational motion to a rotational, linear motion.

7. A motor-driven injection molding machine according to any one of claims 1 to 5, wherein the motion direction conversion portion converts a rotational motion to a linear motion.

8. A molding method using a motor-driven injection molding machine having a member-to-be-driven, a motor, and a motion direction conversion portion disposed between the motor and the member-to-be-driven, the method being characterized by comprising the steps of:

(a) generating rotation by means of driving the motor;

(b) converting a rotational motion of the rotation to a

linear motion; and

(c) operating the member-to-be-driven by means of the linear motion, wherein

(d) in the motor, a ratio of a stacking length of a magnet of a rotor to an inside diameter of a stator is 3 or more.

9. A molding method using a motor-driven injection molding machine having a member-to-be-driven, a motor, and a motion direction conversion portion disposed between the motor and the member-to-be-driven, the method being characterized by comprising the steps of:

(a) generating rotation by means of driving the motor;

(b) converting a rotational motion of the rotation to a linear motion; and

(c) operating the member-to-be-driven by means of the linear motion, wherein

(d) in the motion direction conversion portion, a ratio of a length of a screw portion of a nut to a diameter of a screw shaft is 3 or more.

10. A molding method using a motor-driven injection molding machine according to claim 8, wherein a ratio of a length of a screw portion of a nut to a diameter of a screw shaft is 3 or more.